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Recommendations for phototherapy during the COVID-19 pandemic End of Life Considerations in the ECMO Patient - A Case Presentation

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Learning Objectives

1. Understand ECMO basics - its utility, indications, and importance to the palliative care provider
2. Describe unique clinical challenges associated with terminal weans of ECMO in an awake patient
3. Identify potential areas for future research regarding terminal weaning of ECMO

Introduction: What is ECMO?

Extracorporeal membrane oxygenation (ECMO) is an emerging life-sustaining intervention for patients experiencing critical cardiopulmonary compromise. ECMO is a “bridge” therapy, reserved for the most critically ill patients. Despite the promises of this intervention, studies have shown that over 40% of patients receiving ECMO do not survive their hospitalization.¹ In light of this, existing research and protocols for weaning ECMO in the setting of medical futility is extremely limited.^{2,4} Additionally, research suggests that medications may work differently for patients receiving ECMO³, raising questions about the development of future protocols in this patient population.



Figure 1. A patient being cannulated for VA ECMO

How ECMO Works

In basic terms, ECMO can be thought of as a heart-lung bypass machine, taking over the role of oxygenation, ventilation and/or generating cardiac output when the lungs (VV) and/or heart (VA) are failing.

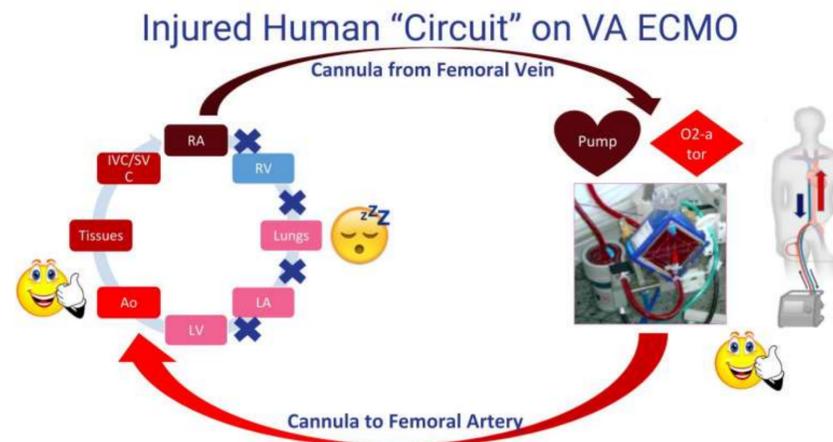


Figure 2. ECMO circuit diagram,

A Clinical Case

60 year-old female with a history of pulmonary sarcoidosis who was hospitalized for acute-on-chronic hypoxic respiratory failure, complicated by in-hospital cardiac arrest. She was ultimately resuscitated and placed on VA-ECMO as a bridge to lung transplantation. After several weeks during her hospitalization, she remained awake and conversant. She developed multiple complications and was subsequently informed that she was no longer a candidate for transplantation or ECMO support. The patient and her family were able to participate in a goals of care discussion and the decision was made to discontinue ECMO. Prior to the ECMO wean, she received boluses of IV morphine and lorazepam, and a morphine infusion was initiated. Her ECMO was weaned to 50% settings, and then discontinued altogether as medications were titrated. Despite this, the patient was noted to have evidence of respiratory distress including accessory muscle use. She died approximately 20 minutes after discontinuation of ECMO.

Take Home Points

- ECMO is an emerging life-sustaining therapy for some of the most critically ill patients
- ECMO utilization in the U.S. has grown exponentially over the past decade⁵
- ECMO patients and their families often have a large palliative care need
- There is minimal research on symptom management or established protocols for patients undergoing a terminal ECMO wean
- Interpolating wean protocols from other life-sustaining interventions (e.g. mechanical ventilation) may not yield anticipated or satisfactory results

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